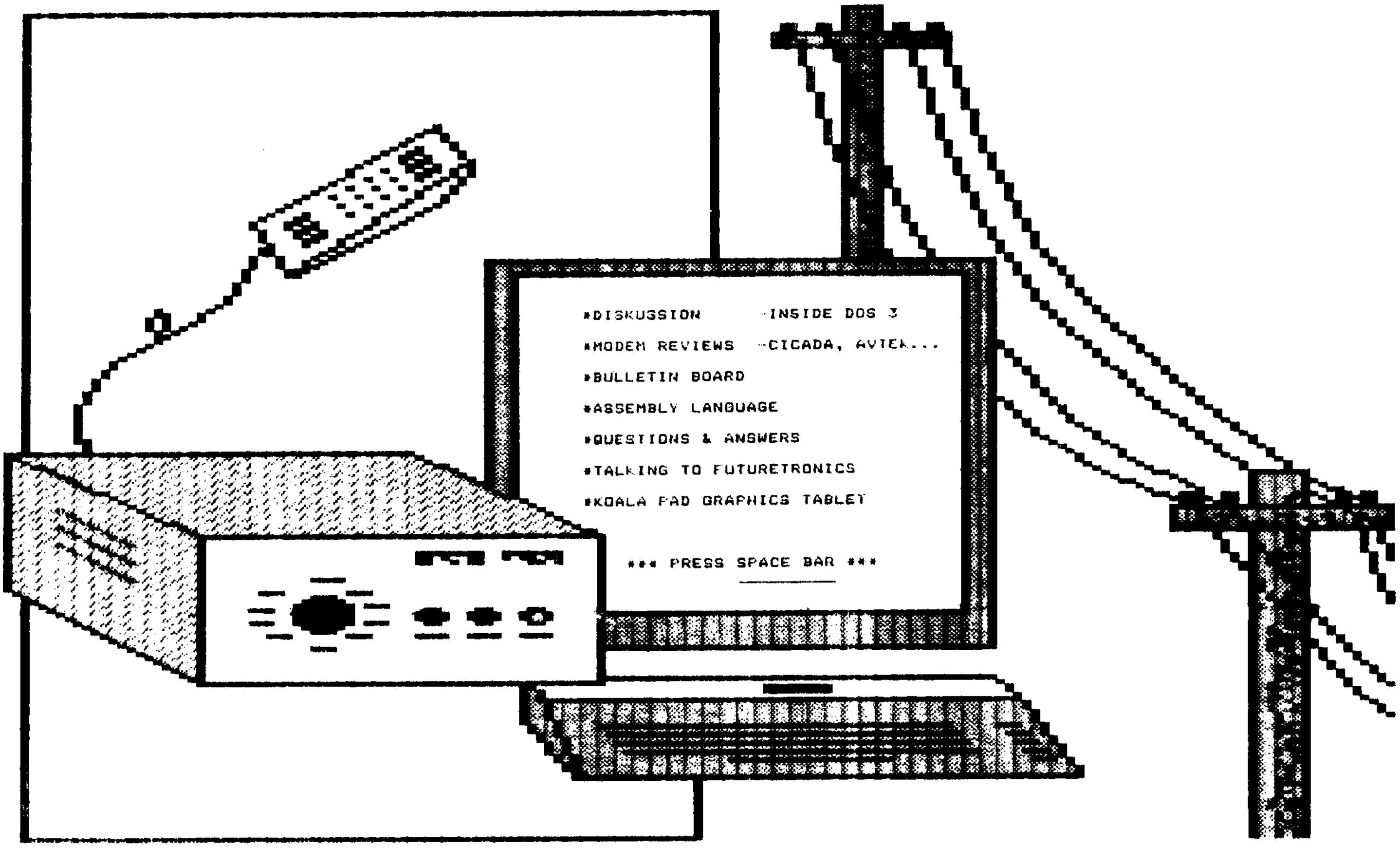
ATARI COMPUTER ENTHUSIASTS [N.S.W.]

A.C.E. (N.S.W.)
G.P.O. BOX 4514,
SYDNEY. 2001.
N.S.W. AUSTRALIA.

INSIDE INFO No. 12 April 1984

ANNOUNCING...


*DISKUSSION -INSIDE DOS 3
*MODEM REVIEWS -CICADA, AVTEK...
*BULLETIN BOARD
*ASSEMBLY LANGUAGE
*QUESTIONS & ANSWERS
*TALKING TO FUTURETRONICS
*KOALA PAD GRAPHICS TABLET
*** PRESS SPACE BAR ***

ACE BULLETIN BOARD

REGISTERED BY AUSTRALIA POST PUBLICATION No. NHB 5994

INFORMATION

Atari Computer Enthusiasts (N.S.W.) is an independent, non-profit computer users' group loosely affiliated with Atari Computer Enthusiasts in the U.S.A. We have no connections with ATARI, Inc. or their Australian distributors, Futuretronics Australia Pty. Ltd. Our aims include promotion of the various ATARI Home Computer Systems, instructing both beginners and advanced users in programming techniques, exchanging public domain software, hints, tips and ideas amongst members and generally enjoying ourselves. The Club cannot condone software piracy.

COMMITTEE MEMBERS	Home Phone #
Tony Reeve (President)	(02)452 2974
Barry Williams (Vice President)	(02)452 2229
Alex Kwok (Secretary/Treasurer)	(02)661 3377
Peter Bamford (Meetings Organizer)	(043)42 2655
Peter Dickeson (Cassette S/W Xchge)	(02) 80 2505
Brian Simmons (Disk S/W Xchge)	(045)76 5331
Chris Fitzgerald (Editor)	(02)637 5447
Roberto Romano (Bulletin Board)	(02)327 4898
Jeff Maddock (Librarian)	(02)568 2990

Address all mail to the relevent committee position:-

C/- Atari Computer Enthusiasts (N.S.W.)
G.P.O. Box 4514,
Sydney,
N.S.W. 2001.

MEMBERSHIP FEES

$30 for the first year and $15 thereafter (or $20 and $10 respectively for students under 18 and still at school). Overseas air-mail subscriptions are $10(Aust) extra per year. Please write to the Secretary for further details.

SOFTWARE EXCHANGE

Currently, there are 5 titles available to members, on either disk or tape. These are:

*GAMES #1 *UTILITIES #1 *fig-FORTH
*INSIDE INFO Vol. 1 *XL TRANSLATOR (disk only)
*INSIDE INFO Vol. 2 with CARTOONS

DISKS: $10 each. CASSETTES: $8 each.

Non-members add 10%. Include an extra $1.50 to cover surface postage within Australia. Contact appropriate software exchange for further details. Overseas members should write for costs first.

For every program you write and have accepted by the Software Exchange, you will be entitled to one Software Exchange disk or tape at half price.

We are keen to exchange software with other user's groups.

BLANK MEDIA

DISKS: $32 CASSETTES: $9

Prices are for boxes of 10 and may change without notice. An extra $1.50 should be included to cover postage within Australia. Contact appropriate Software exchange for details.

DISK BOXES

These hold 90 disks and have a lockable lid. Cost to members is $35, non-members $39.50. Include an extra $3.35 for postage within N.S.W. and $5.50 elsewhere within Australia. Contact club Secretary for details.

SPECIAL INTEREST GROUPS (S.I.G.s)

Home phone numbers of contacts are given below. Phone them or write to the Editor with your suggestions, high scores, reviews, hints or tips.

ADVENTURES: Contact Garry Francis	(02)789 1397
ARCADE GAMES: Contact Ken Shiu	(02)534 2120
COMPUTE!: Contact Barry Williams	(02)452 2229
FORTH: Contact John Mattes	(02) 94 5463
HARDWARE: Contact Jamie Athas	(02)349 7365

A.C.E. BULLETIN BOARD -Phone(02)327 4898

Systems Operator (SYSOP) is Roberto Romano. System available between 8.30 P.M. and 9.30 P.M. Tuesday to Saturday only. Access requires a personal password which is available from SYSOP for $3 per year. We recommend you use "JTERM" terminal software. PUBLIC DOMAIN SOFTWARE ONLY!

INSIDE INFO

This is our bi-monthly users' group magazine. Articles, etc. should reach the editor at least one month ahead of the release date. Authors of articles printed in INSIDE INFO are entitled to one disk or cassette from the Software Exchange at half price.

BACK ISSUES: $4 each plus air-mailing costs.

EXCHANGE SUBSCRIPTIONS: We are keen to exchange magazines with other Atari Users' Groups. Please write to the Secretary for details.

COPYRIGHT: Unless otherwise stated, articles in INSIDE INFO are not copyrighted. However, if any article is reprinted, acknowledgement of our source should be made. Also, please send TWO copies of the issue of your magazine to A.C.E. (N.S.W.).

ADVERTISING: Contact the Vice President for costs and conditions. Members' personal adds are free.

REFERENCE LIBRARY

Some books are brought to meetings, others are available only by arrangement with the librarian. Loans are made only to people researching articles or talks for the club.

DISCOUNTS AVAILABLE TO MEMBERS

You may be asked to present your membership card before being given any discounts!

COMPUTERWAVE [5% -cash only] 325 George St, Sydney. (near Wynyard) Ph. (02) 29 1631.

THE COMPUTER SPOT [5% credit, 10% cash] Shop C4, M.L.C. Centre, Martin Place. Ph.(02)235 2971.

COVER CARE [25% off computer dust covers] P.O. Box 719, Chatswood, N.S.W. 2067. Ph.(02)498 5631.

MEETING DETAILS

Meetings are held at 6.00 P.M. on the first Monday of the month (or the second Monday if it clashes with a public holiday) in the Amenities Room, 7th Floor, OTC House, 32-36 Martin Place, Sydney.

NOTE: You can't enter the building after 6.30 P.M. and you MUST sign in!

MEETING DATES FOR 1984

7th May *4th June 2nd July
*13th August 3rd September *8th October
5th November *3rd December.

* indicates release dates for INSIDE INFO.

EDITORIAL

Phew!! Another edition finished, life's been getting pretty hectic since I became Editor. It's caused a few hassles for me but things seem to be working themselves out now.

I'd like to thank those people who have been submitting articles and columns -it's bit of a worry when you're not sure where articles for the next magazine will come from! While there are heaps of articles from other user group magazines, I feel that with the two hundred plus members we have we should try to present articles which are helpful and specifically address our members' needs. Of course, to do this, we need feedback! Without feedback INSIDE INFO will become a magazine which won't be of interest to you because it won't be able to meet your needs.

Concerning article submissions, as (temporary!?!?) editor I don't see that it is my role to get people to write articles nor do I intend telling anyone what they should write -your work, like mine (and the rest of the committee), is voluntary.

However, I do feel that I should try to make sure that your articles can be easily understood by everyone and (to the best of my ability) check that errors and the like don't creep in.

While I'm learning a lot doing this, I often feel out of my depth as editor because I've only ever done BASIC programming -I've never gotten into sound, graphics or machine language and here I am checking all these articles.

At any rate, don't be afraid to write for your magazine -the more you put into it, the more you (and everyone else) will get out of it.

Chris Fitzgerald.

ARTICLE SUBMISSIONS

While I'm very thankful for any support for the magazine in the form of articles, programs, etc., I'm beginning to wear my two (yes TWO!!!!) typing fingers down to stubbs. It takes me well over an hour to type just one of these pages, so it will save me a lot of time and be heaps more convenient if you give me a copy on either disk or tape rather than a hand written copy.

If you don't have a word processor just use REM statements to write your article -don't worry about formatting it, I have to do that anyway.

In the next issue of Inside Info I hope to include a BASIC program listing for a word processor which will work with either, cassette or disk based systems.

One problem that I've been having is that a lot of copies of articles (from disk or cassette) made at meetings or computer shows won't load when I go to edit them at home. This means that I can lose a lot of time, and perhaps have to leave the article out of the magazine, because I may not have the time to chase up the authors again. Because of this, I prefer you to give me a copy of your article or program on your own media. If you need your media back in a hurry, I'll copy it at home and mail it back to you as soon as possible -this'll make my life a bit easier. Don't forget to put your name and address on your disks, cassettes or whatever.

If you just want to put a short add or notice or something in Inside Info, just write it out and hand it to me -don't rely on my memory, you may be disappointed.

NOTICES

*****

A lot of people and organizations have been sending club mail to the private addresses of former committee members, causing some very long delays in your mail reaching us!

When you read this notice, would you please ensure that you change your records to the correct address which has been used for 18 months. The address is:-

A.C.E. (N.S.W.)
G.P.O. Box 4514,
Sydney. 2001.
N.S.W. Australia.

*****

The club has a new secretary. Tony Dinallo is going overseas for an indefinite period so Alex Kwok has decided to take on the job. Alex's phone number is included on the information sheet. Our thanks to Tony for doing a good job in keeping things in order. Thanks also, to Alex for being brave enough to volunteer his services.

*****

Last issue saw the introduction of an 'information sheet' on page 2 of INSIDE INFO. The sheet has virtually all of the information about our club that you'll ever need to know and should make it a little easier for you should you have any questions. Because the club is growing, changing, and offering more services to its' members all the time, it is intended to update the information sheet from issue to issue. For this reason the sheet has been dated so that you can be sure you have the latest information to refer to when dealing with the club or giving a copy to someone else.

Most of the items mentioned below have details given in the information sheet.

*****

After many months of effort, the clubs' Bulletin Board is finally operational. The System Operator's (SYSOP's) name is Roberto Romano.

Officially known as The ACE BULLETIN BOARD, the service is only available for use between the times of 8.30 P.M. and 9.30 P.M., Tuesday to Saturday.

Due to the limited disk space available on the bulletin board, it has been decided to restrict its use to members only, and to charge a $3.00 annual fee. Once the fee is paid, Roberto will issue you with a 'secret' password which will allow you to access the bulletin board service. It is intended to use the money to phone other bulletin boards, both here and in the States, and download some of their programs.

This issue of INSIDE INFO contains a program listing for 'MINATERM.NSW' which will allow you to download the recommended 'JTERM' terminal software from the board. Other articles in this issue explain the service more fully.

The BBS is only for PUBLIC DOMAIN software, do not send (up-load) any copyrighted software.
THE PHONE NUMBER IS (02)327 4898.

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At the 2nd Australian Personal Computer Show contact was made with the SORCERER USERS' GROUP (no, we haven't sold out -well, not completely!). By combining our orders with theirs' we should be able to get the Cicada 300 modem for about $155 (saving about $45) and the Cicada 300T (with phone) for about $202 (saving about $100). We need to buy a total of 20 modems in order to get them at these prices and finalise the deal quickly. Leave your name, address and desired modem (in writing) with a committee member at or before the May meeting (7th of May) -we'll get back to you.

Obviously, the club can't just outlay all of this money itself so anyone wanting to order a modem will be required to leave an $80 deposit before we go ahead and order them. Also, the prices stated do not cover postage. There are some reviews on these modems in this issue of Inside Info.

*****

In the September, 1983 issue of Compute! ('Reader's Feedback' column) the magazine stated that there is nothing wrong with swapping programs which are printed in the magazine -as long as the person receiving the program has the relevent issue of Compute!

Hence, Barry Williams has started what might be called a 'COMPUTE! Special Interest Group'. Essentially, it is intended to save our members' fingers by allowing you to swap programs (which have appeared in COMPUTE! magazine) for others which have been typed in by your fellow members.

You'll have to prove that you have the issue in which the program you want appears!!! To do this you can either show Barry your copy of the magazine or an address label that was used to send your magazine subscription to you. Please respect this 'service'.

*****

Another new Special Interest Group has started under the guidance of Jamie Athas. The group will look at hardware projects and possibly hardware modifications. If you have any ideas, suggestions or whatever you can write to the club address or phone Jamie direct.

*****

The ADVENTURE Special Interest Group has now been officially taken over by Garry Francis. Garry is very much into adventures, so if you have any questions he'll probably have the answers.

*****

The club has purchased 50 disk boxes to sell to members at a very reasonable price. These boxes hold up to 90 disks and have a lockable lid. Similar boxes are sold in the shops for about $80 but we're selling them to members at $35.00 (or $39.50 for non-members). Please check the information sheet or contact the Secretary for further details.

*****

As mentioned in the last INSIDE INFO a lot of existing software will not run on the new XL Ataris. A TRANSLATOR DISK is now available which will re-configure the XL Operating System back to the old Operating System. This disk is available from the Disk Software Exchange for $10 plus postage.
NOTE: Some programs will not load because of the 1050 disk drive. This disk does not 'fix' this problem. A list of programs which will not run because of either, the XL OS or 1050 drives, is available from:-

Futuretronics.
147 McEvoy Street,
Alexandria. 2015.
Ph(02)517 2300

*****

At the last meeting of the Committee it was suggested that if there was enough interest from members, we could make bulk purchases of items not available here (e.g. disk drives, printers, interface units), from overseas.

For example, the RANA disk drive would cost about $US300. We would have to buy Australian power supplies which would be an added cost, plus we would have to pay 2% duty plus 20% salestax, as well as cover postage from the States. These costs are only tentative and would need to be checked out before we actually bought anything.

This set-up will rely entirely on how much response we get from members. Let someone on the Committee know your feelings or what you'd like. Of course, you'd have to pay for the goods in advance.

A.C.E. BULLETIN BOARD/MODEMS

by Roberto Romano. (Bellevue Hill, N.S.W.)

This month I have the pleasure to announce that the bulletin board is finally operational. It took a number of months to get to this point but I am sure that those of you who will use it will be pleased with the service it offers.

At the time of writing, several PUBLIC DOMAIN programs are available for downloading, including KEYSTROKE ARTIST, a very good program from the July '83 issue of ANTIC. There is also a substantial terminal program (JTERM) which allows you to upload/download programs from the BBS. Initially, use 'MINITERM.NSW' to download it. MINITERM.NSW is printed in this issue of INSIDE INFO and was derived from 'MINIATRM' (which originally appeared in ANTIC, May '83) by Anthony Dinallo .

JTERM is the Bulletin Board Software which is recommended for use with the ACE Bulletin Board, it allows you to upload/download programs whereas MINITERM.NSW will only only allow you to download from the Bulletin Board.

Times of access of the BBS are between 8.30 P.M. and 9.30 P.M., Tuesday to Saturday. These times, and any alteration to them, will always be indicated on the INFORMATION SHEET (page two) of INSIDE INFO. *Please do not ring outside these times to make a connection.* If you need help with your system, you can give me a ring at reasonable hours.

This month I have compiled a list of some common modems available in Australia. Prices are of course subject to change -aren't they always?

Cicada 300 & 300T

These are compact, answer and originate units that plug into the phone wall socket. As the name implies, they operate at 300 baud only. They have no auto answer facility. The 300T is exactly the same but comes with a telephone attached. The current price of the 300 is about $229, whilst the 300T about $319.

For more info contact Centre Industries,
P.O. Box 184, Brookvale. 2100. N.S.W.

Universal Data Modem

Another direct-connect (as opposed to acoustic-coupler type) modem, the Universal modem is a versatile unit for the serious communications fan. It features an auto answer mode, selectable baud rates of 300, 1200 and 75 at both Australian and American frequencies. It also has an auto dial feature, which means that you can dial the phone from your computer keyboard. It comes with a one-year warranty and a one-year subscription to the Australian Beginning (worth $35.00).

There are two models, Mark1 and Mark2. The one to get is of course the latest...Mark2, which also has an auto disconnect feature. In all, a nice unit...if you can afford it at $400. Available from Jaycar Electronics, 117 York St, Sydney.

Sendata direct connect

Yet another direct connect modem is this recent release by Electro-Medical Engineering of Armadale, Victoria. *Their advertisement states that it is no taller than a 50c piece and it "fits snugly under the base of a telephone".* It too is simple to operate and attaches directly to the phone socket on the wall. I don't know the exact price but I suspect it to be around the $250 mark. For more info contact:

Electro.Med
69 Sutherland Rd, Armadale. 3143. Victoria.

Sendata acoustic coupler

This is the one that has been around for a number of years, and consists of two "cups" that fit tightly onto the standard phone-handset. In the event of a difficult or troublesome connection, you may be at a loss as to what is happening at the other end of the line since there are no indicating lights for receive data (RX) and transmit data (TX). It only operates at the slow rate of 300 baud. In short, a nice piece for your museum. Rather over-priced at around $200.

Available from certain computer shops.

Avtek world modem

Last but not least is the new Avtek world modem. This is a real price breakthrough considering all the features offered. It comes with auto answer, auto disconnect, baud rates selectable at 75, 300, 600, 1200 at both, Australian and American frequencies.

This is a direct connect modem that comes in kit form, so if you are not afraid of a soldering iron, this is the one to get. The Avtek modem is priced at $249 and is a real bargain when you look at what you get. It is also the unit we have purchased for our BBS.

Avtek Electronics also mentioned that a fully built, Telecom approved unit with phone will soon be available for $329. Available from Avtek Electronics,

119 York St, Sydney OR 172 Liverpool Rd, Enfield.

NOTE: The kit version of this modem is not Telecom approved and it sounds difficult and expensive to get approved. You should take care when you build it, otherwise you may be liable if you damage TELECOM lines!!!

Well, that's all for this month. If you have any questions....

Roberto Romano.

EDITOR'S NOTE: There is also the Dick Smith 'Dataphone' modem at $198 (includes phone). This is very similar to the Cicada 300T but only has two LEDs which indicate power on and carrier detect, whereas both Cicada units have four LEDs which indicate: power on, carrier detect, transmit data (TX) and receive data (RX). I've also heard that the Dick Smith modem has a problem with some of its components. Apparently the trimpots used in the Dick Smith modem tend to go out of adjustment and need constant resetting or to be replaced with higher quality components -this could be inconvenient for you, especially if you don't know electronics!!

Sound like a sales pitch for the Cicada modems? -well, if you look through the NOTICES you'll see that you can get either Cicada modem, through the club, at a good price.

MODEMS

by Tony Dinallo. (Haberfield, N.S.W.)

Following on from my last article on communication standards I will now present, in a three part article, more explanations of the terminology used, this time regarding software options, a modified terminal program, and two Bulletin Boards on which you can experiment.

In the last issue I said that the RS-232-C was the standard used in connecting up a MODEM to a computer. After battling through the different pin connections you now have to battle through the various software options.

Reading the manual supplied with the ATARI 850 I/F module you find that you need to configure PORT 1 (RS-232-C compatible) in order to use it with a MODEM. These are done using the XIO (special input/output) commands as outlined in the manual. The most common options are as follows:

BAUD RATE This is the data transmission speed which is measured in bits per second (bps). The most common baud rate used on Bulletin Boards is 300 bps, with some operating at up to 1200 bps. The 850 I/F module can handle up to 9600 bps.

WORD SIZE Each character is made up of individual binary digits abbreviated as 'bits'. For example, the letter 'A' comprises the following bits:

0100 0001

This is known as an 8 bit word. ASCII only needs seven bits to represent any one of its characters, therefore it doesn't use the most significant bit (bit 7). ATASCII, however, uses the full 8 bits, the eighth bit being used to distinguish between normal and inverse characters. e.g.

ASCII A = 100 0001
ATASCII A = 0100 0001
INVERSE ATASCII A = 1100 0001

NOTE: The Most Significant Bit (MSB) is bit number 7. Bits are numbered 0 through 7 -in other words there are 8 bits and 7 is the highest numbered bit. These bits are numbered from right to left.

Since data is transmitted serially (one bit at a time), you must specify how many bits in a word. Generally, there are seven for ASCII and eight for ATASCII.

TRANSLATION Some ATASCII characters are different from their ASCII counterparts (e.g. Carriage Return, Backspace, Bell etc.). Therefore, these characters must be translated into their equivalent ASCII character codes. The 850 allows Light or Heavy Translation, Light being used for fewer changes between ASCII and ATASCII while Heavy Translation is used to prevent any non-ASCII code from being sent to and from the computer.

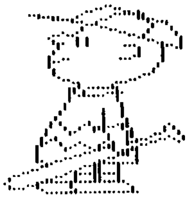
STOP BITS Each character sent for transmission has one or two stop bits appended to its binary format. This allows the receiving end to synchronize the data stream, should it be interrupted while data is being transmitted to or from the host.

PARITY Parity is an error checking method which counts the number of 1's or 0's in each character. The two forms of parity are ODD and EVEN with EVEN being the one most commonly used. The 850 I/F module allows you to select either ODD or EVEN parity, or you can have it ignore the incoming parity if you are uncertain of the type used.

DUPLEX MODES FULL duplex means that data can be transmitted and received simultaneously. HALF duplex means data can only be sent one way at a time. A telephone is FULL duplex while CB radio (press to talk) is HALF DUPLEX.

A FULL duplex system echos back the character you transmit and this appears on your screen. It's an assurance that data sent has been received by the remote computer. In HALF duplex, what you type is displayed on the screen while it is being sent to the host. If you are in HALF duplex mode while the host is operating in FULL duplex and you type HELLO it would appear on the screen as HHEELLOO.

Bulletin Boards operate at FULL duplex. While communicating with other MODEMS you will need to operate in HALF duplex.
More detailed information can be obtained by studying the 850 I/F User Manual.



A TERMINAL PROGRAM

by Tony Dinallo. (Haberfield, N.S.W.)

```
1 REM ##################################
2 REM #        MINATERM.NSW            #
3 REM #     by Anthony Dinallo         #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)        #
6 REM #         April 1984             #
7 REM ##################################
100 CLR :GOSUB 1000
110 ? :? "Now press START when ready."
120 IF PEEK(53279)<>6 THEN 120
130 SAV=0:CLOSE #2:XIO 34,#2,192+48+3,
0,"R:"
140 XIO 36,#2,STP,0,"R:"
150 XIO 38,#2,TRANS,0,"R:"
160 OPEN #2,13,0,"R:"
170 XIO 40,#2,0,0,"R:"
180 ? CHR$(125):SETCOLOR 2.7.4:POSITIO
N 10,0:? "  * TERMINAL MODE *"
190 STATUS #2,C:IF PEEK(747) THEN GET
#2,C:? CHR$(C);:IF SAV THEN POKE ADDR,
C:ADDR=ADDR+1:GOTO 190
200 IF PEEK(764)<255 THEN GET #1,C:PUT
 #2,C:GOTO 190
210 IF PEEK(53279)=7 THEN 190
220 IF PEEK(53279)=5 AND SAV=0 THEN SA
V=1:ADDR=ADR(BUFF$):SETCOLOR 2,2,4:? :
? " * SAVE ON *":GOTO 190
230 IF PEEK(53279)<>3 OR SAV=0 THEN 19
0
240 C=19:PUT #2,C
250 CLOSE #2:? :? "SAVE TO DEVICE (ENT
ER C:,P:, or ":? " D:filename.ext)":IN
PUT D$:IF LEN(D$)=0 THEN 130
```

```
260 TRAP 250:OPEN #2,8,0,D$:TRAP 290
270 FOR I=1 TO ADDR-ADR(BUFF$)+1:BYTE=
ASC(BUFF$(I,I)):IF BYTE<32 AND  NOT TR
ANS THEN NEXT I
280 PUT #2,BYTE:NEXT I:GOTO 130
290 ? :? " * BUFFER EMPTY *":GOSUB 113
0:GOTO 130
1000 REM INITIALIZATION ROUTINE
1010 C=FRE(0)-100:DIM D$(15),BUFF$(C)
1020 BUFF$="":BUFF$(C)="":BUFF$(2,LEN(
BUFF$))=BUFF$:? CHR$(125):? "BUFFER= "
;C;" BYTES"
1030 CLOSE #1:OPEN #1,4,0,"K:"
1040 ? :? "Does the host speak...":? :
? " 1)ASCII   (NON-ATARI BBS)":? " 2)A
TASCII (ACE BBS)"
1050 GET #1,ANS:IF ANS=49 THEN TRANS=0
:GOTO 1080
1060 IF ANS=50 THEN TRANS=32:GOTO 1080
1070 GOSUB 1130:GOTO 1040
1080 ? :? " STOP BIT SETTING...":? :?
" 1) 1 STOP BIT":? " 2) 2 STOP BITS (m
ost common)"
1090 GET #1,ANS:IF ANS=49 THEN STP=0:G
OTO 1120
1100 IF ANS=50 THEN STP=128:GOTO 1120
1110 GOSUB 1130:GOTO 1080
1120 RETURN
1130 REM INCORRECT ENTRY ROUTINE
1140 POKE 712,50:SOUND 0,200,10,5:FOR
DELAY=1 TO 100:NEXT DELAY:POKE 712,0:S
OUND 0,0,0,0:RETURN
```

BRIEF DESCRIPTION OF MINATERM.NSW

Lines 110-120: WAiting for the START key.

Lines 130-170: Setting up the RS232 port on the 850 I/F module for communicating. See the user manual for all the XIO configurations.

Lines 180-190: In terminal mode, waiting for an input and then displays it on screen and stores in buffer if required.

Line 200: Monitors the keyboard for any response from you.

Lines 210-230: Monitors the side console keys and then acts accordingly.

Line 240: Tells the BBS to pause (with a control-S) while you list out the buffer.

Line 250-260: Allows you to select a device and then checks to see if that device is available.

Lines270-280: Lists the buffer to the device selected.

Line 290: Program passes through here if you attempt to save an empty buffer.

Lines 1000-1030: Allocates buffer space according to amount of free memory available.

Lines 1040-1120: Opens keyboard and then proceeds to ask questions on translation and number of stop bits required.

Line 1140: Jumps to this subroutine if you type in a wrong character during question time.

This program was originally written by Jim Steinbrecher and published under the name MINIATRM in the MAY 1983 issue of ANTIC. It was meant to be used as an aid to download a more sophisticated terminal program from the various bulletin board systems which are available in the USA.

As there are no Bulletin Board Systems (BBS) available for the ATARI in N.S.W. (apart from our experimental ACE(NSW) BBS) from which to download any terminal software, I have modified MINIATRM so that it can be used to experiment with the ACE(NSW) BBS and any of the other public or RCPM (Remote Control Program for Micros) systems in Australia. I have called it MINATERM.NSW to differentiate between the two.

The program is simple in that it allows you to communicate with the BBS and also has a memory buffer (the amount depends on your computer memory) in which you can download and save to printer, disk, or cassette.

USING MINATERM.NSW

After you have typed in the program and checked it for errors, SAVE a copy to cassette or disk. Next, boot up your system, making sure that the 850 I/F Module is already ON. If there is no disk drive the 850 I/F module will automatically load its own handler program. In the case of a disk based system, the 850 I/F handler is loaded by booting up with the AUTORUN.SYS file from your DOS 2.0 Master Diskette. After booting and listening for the 850 Handler tone, RUN the MINATERM.NSW program.

The first thing to be displayed is the amount of memory occupied by the buffer. Next, you will be asked whether the host BBS speaks ASCII or ATASCII. Any bulletin board not associated primarily with the ATARI will be in ASCII.

Next, you will be asked for the number of STOP BITS required, if in doubt, select 2. The BAUD rate has been preset at 300 bps, the PARITY is IGNORED, and WORD SIZE set for 8 BITS. This will enable you to communicate with the most commonly available BBS's.

Now, set your modem to ORIGINATE, dial the phone number of the BBS you wish to call and wait for the carrier tone. When the tone is heard, press START and you will be in what is known as TERMINAL MODE. Press RETURN a couple of times and the BBS should respond with a welcome message.

There are two things you will notice when using MINATERM.NSW on an ASCII BBS.

1) A small triangle will appear on the left hand side of the screen, this being an ASCII line feed.

2) The ASCII bell prompt (CTRL-G) will appear as a backslash (\). Ignore these as they won't be saved in the buffer.

To save any of the information that appears on the screen press SELECT. The screen will then change to an amber colour and the words '* SAVE ON *' will appear. Whatever is sent to you will now be saved in the memory buffer. You then have the option of listing the contents of the buffer to disk, cassette or printer. Pressing the OPTION key will allow you to choose any one of the three devices. If you press RETURN instead, the buffer will clear and you will resume terminal mode. If the buffer does not contain data, '* BUFFER EMPTY *' will be displayed on the screen and you will be returned to terminal mode.

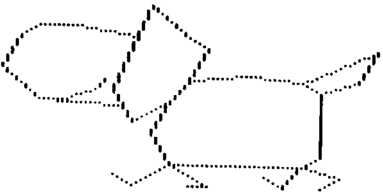
HINTS ON DOWN-LOADING A FILE

If you wish to download a program file, don't turn on the save feature until just prior to the download process. This will eliminate any text from mixing in with the program listing. After the file has been saved in the buffer, choose the cassette or disk option and the program will be stored in LIST format.

There is the possibility that text or other garbage may have been stored along with the program. To clear this ENTER the LISTed program using either 'ENTER"C:' or 'ENTER"D:filename.ext' and anything not belonging to a line-number will be displayed on the screen as errors. This will leave you with a clean version of the program in memory which may then be SAVED to disk or cassette.

If you wish to exit from the program, pressing SYSTEM RESET will put you back to BASIC (make sure you save the buffer first though).

**CAUTION: Typing DOS will wipe out the 850 handler and the whole re-booting process will need to be carried out again.



EXPLORING BULLETIN BOARDS

by Tony Dinallo. (Haberfield, N.S.W.)

After purchasing a MODEM last December, I was interested in learning how to use it effectively, hence my interest in this topic.

The beauty of using a MODEM is that you not only interact with your computer, but you can also intercommunicate with other computer users.

I might add that all my information in this and the last issues of INSIDE INFO came from extensive researching (grabbing hold of any literature I could), lots of trial and error in my attempts to link up with Bulletin Boards (the result being a diminishing bank balance, and a record profit for TELECOM), and of course the availability of Public Bulletin Board Systems (BBS).

Apart from using the MODEM to communicate with friends, the most exciting aspect is to be able to access an on-line information service, such as the AUSTRALIAN BEGINNING. However, this costs money and I didn't wish to spend more until I became fully conversant with the techniques in using a remote terminal.

This brings me to two BBS's which are available in the Sydney area. These allow limited access to visitors, enabling you to make a free connection (apart from the phone call) to try out your terminal software.

Mi Computer Club

MiCC is club set up by the people who publish 'YOUR COMPUTER' magazine. Membership is available to any person who has a computer (regardless of brand) and offers, apart from the Bulletin Board, such services as discount on computer consumables (disks, paper, ribbons etc.), software, books, problem help, monthly newsletter and subscription to YOUR COMPUTER magazine.

To contact this BBS, phone (02) 662-1686. It is available 24 hours a day, 7 days per week, except 7am-8am weekdays.

SPA-RCPM

SPA-RCPM stands for Sydney Public Access Remote Control Program for Micros. It is a public service for CP/M users and has little to do with the ATARI, but it allows visitors to access and retrieve messages from the message system.

NOTE: CP/M is an Operating System for Z80 or 8080 machines.

To contact this BBS, phone (02) 808-3536. This BBS is available 24 hours a day, 7 days per week.

More information regarding activities and membership can be downloaded from both of the above Bulletin Boards.

CONNECTING TO A BBS

To communicate with these two BBS's use the supplied terminal program (MINATERM.NSW) which is printed in this issue of Inside Info.

Switch your MODEM to ORIGINATE, boot your system, and RUN MINATERM.NSW.

Select ASCII mode (option 1) and 2 STOP BITS (option 2). Dial one of the above numbers and wait for the Carrier Tone.

Once you hear it, press START, then press RETURN a couple of times. You should then see the following message:

```
HOW MANY NULLS DO YOU NEED (0-9) ?
```

Type in '0' and then RETURN. It will respond with a welcome message and may ask for your name. If it asks for ID-CODE, on the MiCC BBS, type in 'VISITOR' and on the SPA-RCPM BBS type in '100'. This will allow you to have limited visitor access.

Once the introductions are complete, the BBS may enter into its Control Program mode. At this level you may see the following prompt:

```
0A>
```

Type in 'HELP' (for MiCC) or '?' (for SPA) and a full summary of Bulletin Board commands will be displayed.

I will not reveal any further information as half the fun is exploring the BBS yourself. Just remember that to log-off the system you must type 'BYE'. It is discourteous to just hang up.

Have fun!

QUESTIONS AND ANSWERS

EDITOR'S NOTE: Most of the letters in this column have already been answered through the mail. I'd like to take this opportunity to apologise for the long delays in answering your letters. My only excuse is that I've had a pretty hectic time since I became editor and that I am not much into the workings of my Atari - it therefore takes me a while to search out the answers to some of your questions. In some cases I am not able to find the answers so I'll print the questions in this column and perhaps some of our members can provide answers.

It has also been suggested that any member needing information on a particular piece of equipment could write to this column. Anyone who has had experience with the equipment could then reply or offer to give a demo for the member.

Just one other thing, could you please put your address on any letters you send and also PRINT your name -I think some of our members might be doctors!

*****

QUESTION: How can I implement this feature in a BASIC program? The program calculates and displays an 'exact' or optimum value thus:

```
 "THE MONTHLY PAYMENT IS $384.56
PRESS RETURN TO ACCEPT THIS AMOUNT OR  ENTER YOUR OWN
AMOUNT"
```

Now, pressing RETURN will use $384.56 to continue the calculation or, if a new value is entered, that value will be used instead.

A. Kwok. (Matraville, N.S.W.)

ANSWER: There are probably a few ways to handle this problem, but the one that I would use, goes as follows:

```
 10 DIM AMOUNT$(7):CHARGE=384.56
 20 ? "THE MONTHLY PAYMENT IS $";CHARGE:? "PRESS
RETURN TO ACCEPT THIS AMOUNT OR ENTER YOUR OWN
AMOUNT."
 30 TRAP 20:INPUT AMOUNT$:IF AMOUNT$="" THEN 50
 40 CHARGE=VAL(AMOUNT$)
 50 REM continue rest of program here
```

In line 30, if no value is INPUT for AMOUNT$ (null string), then the variable "CHARGE" is unchanged and the program moves on to line 50.

If a new amount is entered at the INPUT statement, the program passes to line 40. Here, the VAL statement converts the string to a numeric variable and assigns that figure to "CHARGE". One thing though, any characters can be entered for a string INPUT statement -if they are not numeric, the VAL statement will generate an ERROR. The handy TRAP statement, in most cases, will prevent the program from crashing.

You could also vary this to get a similar result by using an ordinary INPUT statement, but no matter which method is used, the last zero after the decimal point will be dropped (i.e. '$384.50' would appear on the screen as '$384.9'). The way to get around this would be to print the value in string form, you would also need to write a little routine to add the trailing zero to the calculated figure.

*****

QUESTION: We have all seen horizontal and vertical scrolling programs thanks to INSIDE INFO. However, I am interested in obtaining a program which "eminates" from the centre of the screen as in racing car type programs (e.g. POLE POSITION).

My aim is to write a program for two people, one chasing the other, over and through canyons.

I.R. Switzer. (Casula, N.S.W.)

ANSWER: Boy, some people ask difficult questions! This is definitely out of my league (like so many other things), can anyone else offer some help?

*****

QUESTION: I want to add a voice track to a program on cassette. I tried to use memory locations 18 and 19 to control the timing of my program recorder in the following program, but for some reason the timing was inconsistent an varied between 6 and 8 seconds. Can you help?

```
 10 POKE 18,0:POKE 19,0:POKE 54018,52:REM zero
timers, turn cassette on
 20 IF PEEK(19)<2 THEN 20
 30 POKE 54018,60:REM turn cassette off
```

P. Tucker. (Lismore, N.S.W.)

ANSWER: There are actually three timer locations in the Atari -18, 19 and 20. Location 20 is incremented by 1 every 1/50th of a second (1/60th in the States) until it reaches 255, it then reverts to zero and increments location 19 by 1 (every 5.12 secs or 256/50). Likewise, when location 19 finally increments to 255, it reverts to zero and location 18 is incremented by 1(every 21 min. 50.7secs or 5.12*256secs).

Therefore, if in line 10, you change 'POKE 18,0' to 'POKE 20,0' you should solve the problem. Since location 20 wasn't zeroed, the program was picking up the timer at any point on its incrementing from 0 to 255 (256 increments) and this gave the variation in time. In line 20 the program waits for location 19 to be incremented to two or more, hence the program will wait approximately 10.24 seconds (i.e. 2*5.12) whilst incrementing 0 to 1 then 1 to 2.

*****

QUESTION: I recently made use of an article out of Microcomputing magazine (August, 1983). The article, titled "Atari's Joystick/Printer Connection" explained how to interface a printer through joystick ports -it works with an Epson MX-100 but not with an Olivetti Praxis (which uses a Microline 80 interface).

The Apple computer will drive both printers. I've fiddled with the duration of the STROBE pulse etc. but cannot get it to work - any suggestions?

P. Tucker. (Lismore, N.S.W.)

ANSWER: I've had no luck getting information on the Olivetti since it has been discontinued. From what I can see in Microcomputing's article, all of the necessary connections are catered for, but the ERROR and DATA BIT 7 connections are unused. At worst, the computer would not be able to detect that the printer was not on-line, or print characters above ASCII value 127 (which typewriters and most printers can't do anyway!). I can only suggest that the pin connections on the Olivetti may not be correct (or standard).

I passed your question on to John Mattes who knows most of this technical stuff. He agrees with what I've said but feels that the ERROR and DATA BIT 7 connections would not affect the operation of the Olivetti, unless the Olivetti is malfunctioning and the Atari can't detect it. He felt that the STROBE line (as set up) gives a longer pulse than is really needed but this should not cause any problems either. All that should be necessary in the software for the pulse to work is to load the relevent accumulator with zero and to send it.

John pointed out that the printer interface would have an input buffer (probably at least 80 characters long) once this buffer is filled or has the CARRIAGE RETURN character sent to it, it prints the entire buffer. If this buffer was not filled or did not receive the CR character, the printer would never print.

He also pointed out that the article does not cater for the ACKNOWLEDGE (ACKNLG) signal which may cause a problem. This signal is sent to the computer from the printer every time a character is received. In the event that the computer was sending characters at a faster rate than the printer could receive and examine them, some characters would be lost -resulting in intermittent printing, or if the CR signals were being lost the printer would not print until its buffer was filled.

I should point out that the EPSON printer that I have provides for this 'handshaking' with either the ACKNOWLEDGE or BUSY signals -this may not be the case with the Olivetti though.

If anyone reading this has any experience or can help, please let us know.

*****

QUESTION: Our Atari Computer Club (Auckland, New Zealand) has recently formed a Word Processing special interest group. We have all had problems with segments of our text being repeated when our letters, documents, etc. are printed out. The printer will stop momentarily, then it reprints about 37 characters and the next line is printed from zero left margin, ignoring the program's set left margin.

We think that it may be an Operating System bug which causes the print buffer (which is 40 characters long) to be repeated. Would a 'Revision B' ROM solve the problem?

S.A. Rumsey. (Auckland, New Zealand.)

ANSWER: The 'new' manual for the Atari 850 interface has a note on page 34 concerning 'basic I/O commands'. This states:

"On rare occasions, the Operating System may re-send a block to the interface module. This may result in part or all of the block being sent twice to the RS-232-C peripheral. To avoid this problem, use Concurrent Mode I/O output."

This note is obviously not totally correct since the problem is not rare and the block is not only re-sent through the RS-232 ports, but also through the parallel printer port. We can only assume that since ATARI is aware of the bug, that they have fixed it in the 'Revision B' ROM. I have had no luck in making enquiries about this from Futuretronics -to date, it appears that the new ROM is not available. I guess we frustrated users just have to wait.

*****

QUESTION: I purchased an MPP 1100 interface from the States. With it was supplied a ROM which had to be exchanged for one in the computer. However, our PAL computers have a different ROM code to that specified and the new ROM certainly would not work in our PAL computer. Our 'clock' setting being different to the American NTSC system may be upsetting things.

The manufacturers are all confused and can't get any information from ATARI about our PAL system! However, they do say that they have sold their interfaces to Europe and have had no complaints! They do say that their interface must be used with a 'Revision B' upgrade. Any suggestions?

S.A. Rumsey. (Auckland, New Zealand.)

ANSWER: I don't know the answer to this one either! This may be a very important question to answer though, since it has been rumoured for some time that ATARI may scrap the 850 interface. Put simply, we are going to need to find a substitute for the 850 if we want to use printers and modems. Of course, if we could get the 'Revision B' ROM, we could probably solve your problems.

*****

QUESTION: I am interested in the MOSAIC 64K RAM Select memory board. I understand that it allows an extra 16K of memory in the form of 'switchable' 4K blocks. I specifically wanted to know how the blocks are switched and if they can be utilized in using ATARIWRITER. As I mentioned in INSIDE INFO No.11, ATARIWRITER sometimes runs out of memory when you use its 'print preview' option, especially in the double column format used for Inside Info. This makes it impossible to preview one whole page. Has anyone out there got the 64K RAM Select board and if so could I please have a demo?

C. Fitzgerald. (Clyde, N.S.W.)

*****

TWELVE RULES OF SOFTWARE

by John Barry

EDITOR'S NOTE: This article first appeared in the March 1983 issue of Australian MicroComputer Magazine. I would like to thank Australian Micro Computerworld for giving us permission to reprint it in Inside Info.

Moses had his 10 commandments and Murphy his laws. How can the microcomputer software industry hope to keep up without a proven, codified set of standards? New software companies lack the knowledge of the industry and market that only experience can bring. Therefore, as a public service, I present the collective wisdom of the microcomputer software industry, condensed into a dozen basic principles.

1. It doesn't matter what a program does as long as it's technically sophisticated.

Technology is the name of the game, and what consumers want most is to be able to tell their friends that they've got the most advanced system available. Therefore, users won't mind the fact that your general-ledger package doesn't conform to generally accepted accounting principles if the technology is state-of-the-art.

Corollary: If you have a sort routine that executes one nanosecond faster than anybody else's, use it - whether your program requires a sort or not.

2. Better be safe than sorry.

Stick to the tried and true. Why be daring or innovative when the world has room for one more adventure game?

3. Announce early.

What counts is not who first produces the product but who first announces it. Therefore, announce your product and take orders (and deposits, where possible) before you actually start to develop the program. That way you'll know if it's worth the trouble.

4. Make yourself indispensable.

Don't do anything that would allow users to get along with you. Once you've sold them the razor, make them spend a fortune on the blades.

Corollary A: Don't structure or document the code. If possible, put it in binary, octal or hexadecimal format to discourage listing.

Corollary B: Make it impossible to copy the program for any purpose whatsoever. There's a lot of money to be made on backup disks.

Corollary C: Avoid whatever standards may exist. Where possible, write your own file format, operating system and disk format.

5. Users can adapt to anything.

Don't bother with expensive screen display routines. Scrolling text up from the bottom of the screen is perfectly acceptable, and users quickly become accustomed to reading words that wrap around from one line to the next. Since all screen sizes are identical, there's no need to worry about material scrolling off the screen before the user has a chance to read it.

Corollary: When you adapt a program from a teletype to a video-display terminal, there's no need to change a thing.

6. Demand that users learn your system.

Don't worry about checking errors that users might make when entering data. If users can't operate the program without crashing it, they have no business operating it at all. If you must write error messages, use non-specific, vaguely threatening messages such as "Memory fault - core dump","I/O error","BDOS error on A: R/O" and "Error at line 43010". The latter is preferred when the program cannot be listed.

Don't bother with expensive screen editing routines. If users make typographical errors, make them retype the whole entry. Better still, make them start the program over. They've got to learn.

7. There must be documentation.

Don't waste much time on producing it though. Assume that the programmer is the best person to write the manual. After all, he's the one who understands the program best. Disregard the fact that the only language he's fluent in is 6502 native code. Set aside a week for writing the manual just before release. You can run it through the copier as you're packaging the disks.

8. Use technical terms liberally.

Users are greatly impressed by technical terminology and catchphrases like "input", "data", "RAM", "ROM", "baud", "ISAM" and "Kbyte". In fact, the more jargon you can pack into each sentence, the better. "Input data into RAM at 9600 baud" is ideal.

9. Avoid trivial issues.

Don't bother to tell users about minor matters like how to load the program or how to initialise a data disk. If they don't know how to operate their computer, they have no business owning one. You may assume that users are experts on their operating systems. If the documentation for the standard operating system stinks, that's not your fault.

10. Assume that users will read the entire manual.

So what if it's an illegible copy, loose-leaf bound, with pages falling out?

Another thing: You need only mention any piece of information once. The more important a particular piece of information is, the more you should strive to discuss it in a footnote, an appendix or not at all. Since users know where everything is discussed, there's no need for an index.

11. Forget testing.

Testing your product is expensive and unproductive. Moreover, in this industry it's just plain tacky. The accepted procedure is to use the initial release of your product as a shakedown version. When users report bugs, take notes and tell them they can purchase the update in six months. (By the way, the second version need not be compatible with the first.)

12. Rely on your dealers for support.

After all, it's their business to learn your programs and bother with the public. Above all, do not put your address or phone number in the manual.

* * *

HARDWARE REVIEW

The Koala Pad Graphics Tablet

Reviewed by Vaughn De Vocht. (Allambie Heights, N.S.W.)

I recently purchased the Koala Pad for $149.95 after having seen it displayed at the "First Australian Personal Computer Show" at Centrepoint.

Included with the Touch Tablet is the Micro Illustrator software (disk only), Instruction Manual, General Technical Manual and Stylus.

The system (with disk based software) requires one disk drive and 32K of RAM to run but a cartridge version of the Micro-Illustrator software that will run on a 16K Atari is in the works.

GETTING STARTED

The Koala pad tablet plugs into joystick port 1. When the auto-boot disk loads the software you are presented with the title screen. By pressing either of the two buttons at the top of the tablet you will get to the main menu.

OPTIONS

The main menu has too many options to explain each of them in full here. Briefly, they are as follows:
DRAW, POINT, LINE, K-LINE, RAYS, FILL, FRAME, BOX, CIRCLE, DISC, ERASE, STORAGE, MIRROR, MAGNIFY and COLOR MENU.

In all, there are nine "paint brush" options which consist of various lines and dots, ranging in width from a single pixel to a diamond shape. Picture resolution is about the same as a GRAPHICS 7 screen. Using these 'shape' and 'brush' options in any combination, you can draw onto the screen by "sketching" your picture on the surface of the tablet using the stylus provided.
A small "HELP?" screen is also available if you are stuck.

LIMITATIONS

Unfortunately, the software has been written to cover the largest possible market of Ataris in use. Put simply, it has been designed to run on a 16K machine with the CTIA chip, NOT the GTIA chip! Hence, the multi-coloured GTIA graphics are not possible with this software and the menu options are severely limited in comparison to the equivalent software for the Commodore 64. The Commodore software has a duplicate mode, two seperate screens for drawing and overlays, as well as allowing 16 colours to be displayed on the screen at once. All of this on top of the options provided for in the Atari version of the software.

THE COLOUR MENU

On the Atari, the software will only allow you to have three foreground colours and one background colour on the screen at a time (the same as GRAPHICS 7). These colours, however, are selectable from the 128 different colour and hue combinations which are available on the Atari.

The "COLOR MENU" is one feature which the Atari has over the Commodore 64. From the main menu you can select this COLOR MENU which allows the following options:
"ANY OF 16 COLORS", "ANY OF 8 HUES FOR EACH COLOUR", RAINBOW COLOR, DEFAULT COLORS, RESTORE LAST COLOR, ADJUST COLOR ON SCREEN.

There are also 12 textured (cross-hatched) colours made up from the 4 solid colours that can be displayed on the screen at the same time. The FILL command even allows you to use these textured patterns to fill any shape at all, and operates in a much nicer fashion than the XIO command in BASIC.

The "RAINBOW COLOR" option is very useful to simulate animation on the screen and can be used to replace any one of the four solid colours in your picture. Once brought into operation, the 'rainbow' scrolls down the screen making use of the full 128 different Atari colours. It looks best on thin lines or the frame of an object, otherwise it becomes too obvious and bright.

THE STORAGE MENU

This menu gives the following options:
LOAD PICTURE, SAVE PICTURE, INDEX DISK PICTURES, DELETE DISK PICTURES and FORMAT BLANK DISK.

Using these options, you can save any picture that you draw and recall it later -just to look at or to change.

Although the manual doesn't mention them, the Micro Illustrator disk comes with about seven pre-drawn pictures ready to LOAD and display on the screen. These pictures seem to vary from disk to disk but are all quite good demonstrations of what can be done on the graphics tablet. If you are thinking of buying the Koala Pad, ask to see some of these drawings first, then you can decide whether or not it lives up to your expectations.

If time allows, I'll let you know if any new software becomes available for the Koala Pad in a future edition of INSIDE INFO.

EDITOR'S NOTE

Graphics Tablets and Light-pens are fast coming into vogue and we'll be seeing many new ones becoming available in the not too distant future. At the Las Vegas 'Consumer Electronics Show' (CES) which was held in January this year, there was a product called the CHALK BOARD. I've heard that this is 3 to 4 times larger than the Koala Pad, works with disk or cassette, will allow pictures drawn on it to be inserted into other programs and allows you to draw with any object, including your finger.

There is also the new Atari light pen which was on show at the 2nd Australian Personal Computer Show. The operation of the pen was very impressive, with what looked like a very good software package to operate it. I have heard rumour though, that the pen will not work on a light coloured screen background -we can only wait and see. Also on display at the show was a large graphics tablet from Ashton Schoolastic which sounds like it has similar capabilities to the 'Chalk Board'. I understand that it is about 460mm (18 inches) square and will cost around $199, probably making it stiff opposition for the Koala Pad.

DISKussion

by Ken Scalley. (Winston Hills, N.S.W.)

Well, here it is, another month and the editor has let me back to write another column. He had to really.. all the fan mail (both letters were in favour,.....but next time Christopher, don't use "daddy" -the editor is getting suspicious). Anyhow, on with the article.

Last time, we looked at the layout and general details of a DOS 2.0 disk directory, VTOC and how DOS keeps track (no pun intended) of which sectors belong to which file. Probably the best thing to do now is to set up a little program which will read and write sectors without using DOS. This will allow us to examine a disk so that you will be able to see what I'm talking about.

SECTOR PROGRAM

Onto the program which can look at individual sectors. Inside your Atari there is a program in ROM called the Resident Disk Handler. It only understands a few commands -like read a sector, write a sector, format a disk, and status of drive. We will only look at the first two commands here.

To set up this program, we need to tell it what we want to do. To do this we use a Device Control Block, which starts at memory location 768(decimal). What is a DCB? ..I'm not sure enough to talk about it, but then, this is an article on disks, after all.

Anyway, here's the program:-

```
1 REM ###############################
2 REM #        DISKUSSN.BAS         #
3 REM #       by Ken Scalley        #
4 REM # Published by Atari Computer #
5 REM #    Enthusiasts (N.S.W.)     #
6 REM #         April 1984          #
7 REM ###############################
10 POKE 1536,104:POKE 1537,32:POKE 153
8,83:POKE 1539,228:POKE 1540,96
20 POKE 769,1
30 POKE 770,82
40 DIM A$(128):A$(1)=" ":A$(128)=" ":A
$(2)=A$:POKE 773,INT(ADR(A$)/256):POKE
 772,ADR(A$)-256*PEEK(773)
50 ? "SECTOR #";:INPUT SN:POKE 779,INT
(SN/256):POKE 778,SN-256*PEEK(779)
60 X=USR(1536)
70 ? "}SECTOR # ";SN
80 FOR J=1 TO 128:D=INT((J-1)/8):A=4*(
J-8*D):POSITION A,D+1:? ASC(A$(J,J));:
NEXT J
90 ? :? "STATUS ";PEEK(771)
100 RUN
```

PROGRAM DESCRIPTION

LINE 10: To access the disk handler, we must be able to "jump" to it from basic, so we must POKE a USR routine into the program.

LINE 20: The first location, 768, is not used by us. But location 769 is POKEd with the drive number.

LINE 30: Location 770 contains the command we want carry out. POKE with 82 to read, 87 to write with verify -the Resident Disk Handler doesn't support write without verify.

Location 771 returns the status of the task performed: 1 means successful, and anything else is an error (these numbers are the error codes, e.g. 144 device done error), so nothing gets POKEd in here.

LINE 40: Firstly, A$ is initialised by filling it with blanks. The program then looks at the next two memory locations which combine to form the address of the memory location where your data from disk will be stored (or read from if we are writing to disk). This address is stored in low byte, hi byte form, so the address equals PEEK(772)+256*PEEK(773). We dimension an array to reserve space and POKE in the address.

LINE 50: The only other locations needed are 778 and 779. These contain the sector number to be read (or written), again stored in low byte hi byte form. So you INPUT the number for the sector you want to read.

LINE 60: We "jump", using our USR routine.

LINES 70-100: Now all we have to do is to write out the answers on the screen.

This program should allow you to look directly at any sector on a disk. Next time, we can use this program to demonstrate what I spoke about in the first column, and expand the program to do a few more tricks.

But now, DOS 3.0 has now arrived!!!!!!!!

DOS 3.0!!!

I have had the chance to have a quick look at DOS 3.0 and my first impression is that it is even more menu driven than before (you know what I mean, press 'Y' if you're sure, then press 'Y' if you are absolutely, positively, really sure!).

I have set out some of its good points, bad points, and differences from DOS 2.0. However, this is the result of a very quick look, and from my point of view ..mainly how VTOC and pointers, etc are set up ...not really ease of use, etc.

GOOD FEATURES

Pressing RESET whilst in BASIC no longer causes the disk drives to time out ..no more ddrrr!!! Also, hitting RESET while using the DOS menu (without the BASIC cartridge in place) just puts you back into the DOS menu (real quick!) instead of re-booting the disk to re-load DUP.SYS. DOS 3.0 now makes all 128 bytes of a sector available for file storage whereas DOS 2.0 only allowed 125 useable bytes in each sector.

BAD POINTS

If you 'boot' the system without the equivalent of DUP.SYS (called KCP.SYS -I think) on the disk, you can't access the DOS menu. This is fair enough, but if you then swap to a disk which has KCP.SYS on it, you still can't access the DOS menu! (or at least I can't find out how to do it).

DOS 3.0, when compared with DOS 2.0, uses an extra 140 bytes of memory while using BASIC.

The minimum file length is 8 (DOS 2.0) sectors because of the use of BLOCKS in DOS 3.0.

DIFFERENCES

DOS 3.0 now uses BLOCKS rather than sectors, each block being the equivalent of 8 (DOS 2.0) sectors or exactly 1024 bytes (1Kbyte). Hence, there are no longer 720 sectors, but rather 90 blocks (in the normal 810 density).

The disk directory has a different format and is contained within the third block on the disk (sectors 16 to 23). It contains file information such as the pointer to the first block of the file and the number of blocks within that file.

VTOC (or whatever it's called now) is also different, and is located at the end of this third block (sector 24). VTOC contains 128 bytes, allowing one byte for each block on a disk and therefore a maximum of 128K (or 128 blocks) on a 1050 drive.
[EDITOR'S NOTE: DOS 3.0 is not true 1.5 density, if it was, VTOC would be able to address 135 blocks (90 blocks times 1.5), not 128.]

Each byte in VTOC is a 'flag' which indicates the status of the block which it represents. These bytes appear to mean the following:-

255 -not on disk (i.e. 810 format, blocks numbered above 90 (sectors after 720) are not present.
254 -block not in use.
253 -block in use, and the last block in the file.
Any other number (up to 128) is a pointer to the next block of a particular file (the first block in the file is indicated by the disk directory).

The layout of the directory appears to be as follows:-

Byte 1 -flag is 0 if not used.
-flag is 192 if in use.
-flag is 194 if locked.
-flag is 128 if deleted.
Bytes 2-9 -filename primary.
Bytes 10-12 -filename extension.
Byte 13 -number of blocks in file.
Byte 14 -number of first block in file.
Bytes 15-16 -length of file in low byte, hi byte form.

SOFTWARE COMPATIBILITY

This would probably be better headed software incompatibility!

DOS 3 comes with an option which will convert DOS 2 files to DOS 3, but disks (such as my ABC compiler) which boot on their own DOS 2 can't even access DOS 3 files. Even worse, my Monkey Wrench won't even load ..not at all!

Well, that's all for this issue. I got back this time, so all things being well, I'll be back next time too.

HARDWARE REVIEW

MODEM REVIEW - CICADA CI 300

CENTRE INDUSTRIES

reviewed by Anthony Dinallo (Haberfield, N.S.W.)

The CICADA CI 300, from Centre Industries in Sydney, is a direct-connect MODEM supporting full duplex at a baud rate of 300 bps. The unit is TELECOM approved and conforms to the CCITT V.21 standards, meaning that it is only suitable for the Australian phone system. It uses the RS-232-C standard and therefore must be connected to the computer via the ATARI 850 Interface Module.

The MODEM is housed in a sturdy, blue and cream metal case, on top of which may be mounted a standard telephone. It comes with a 12 month warranty (which covers material and workmanship), a very basic instruction manual (sheet!!) and circuit diagram.

The front panel has three switches and four LED indicators on it. The three switches are: Power On/Off (surprising how many don't have these), Answer/Originate mode select and Phone/Modem switching. The LED indicators are for Power, Carrier Detect, Receive Data (RX) and Transmit Data (TX). These indicators have proved to be extremely helpful when trying to establish communication links.

This MODEM must be connected through a special auxiliary, parallel phone socket (or you can get a 'Y' adaptor for $29.95 -or make one up for yourself), but this allows the modem to be left in place permanently, as opposed to some other modems which need to be unplugged. Leaving the modem permanently connected will not interfere with the normal telephone service when it is not in use.

One nice feature is that the Phone/Modem select switch can be controlled by the Data Terminal Ready (DTR) signal from the 850 I/F Module allowing the computer to switch between PHONE and MODEM. When the MODEM is switched off, it automatically re-connects the phone, eliminating the risk of having the phone 'off the hook'.

The CI 300 is an inexpensive, simple, and easy to use MODEM suitable for the home computer enthusiast, wishing to explore the possibilities of computer communications.

NOTE: Centre Industries have now released the CICADA CI 300T, which is functionally similar to the CI 300, but incorporates an integrated telephone. This means that the 300T does not require a special auxiliary socket and may be plugged directly into the existing telephone socket.

[EDITOR'S NOTE: I rang around for prices on these two modems and was told that the CICADA 300 was $229. The 300T was said to be around $319, but that was uncertain. If you look through the club notices (in this issue) you'll get details on how to get one of these modems, through the club, at a cheap price.]

BASICS OF ASSEMBLY LANGUAGE (PART 2)

by Craig Fizzell. (Wentworthville, N.S.W.)
and Ken Shiu. (Lugarno, N.S.W.)

EDITOR'S NOTE: The first part of this article appeared in INSIDE INFO No.10, December 1983.

IMMEDIATE OPERANDS

In our last article we introduced special "addressing" symbols used by the assembler. To avoid any future confusion we will now explain these in greater detail.

Any number which follows the "#" symbol is placed directly into a specified 6502 register. e.g.,

```
10 LDA #24 ;Load Accumulator with 24 (decimal)
```

When using the "#" symbol DO NOT load any 6502 register with a number less than 0 (zero) or greater than 255. This is because the 6502 can only work with 8 bit numbers (i.e. 0-255).

The "$" symbol placed before a number indicates that the number is a hexadecimal (hex) address. e.g.,

```
10 LDA $7FFF ;Load Accumulator with contents
             ;of address $7FFF
```

REMEMBER: The number following the "$" symbol must be in hex and not be outside the range of $0-$FFFF. Common uses of the "$" symbol are to define the origin of the program or a label.

When the "#$" symbols are combined they tell the assembler to accept the following number as a hexadecimal and to load it directly into a register. This number must be in the range of $0-$FF (0-255 decimal). e.g.,

```
10 LDA #$0A ;Load Accumulator with $0A (10 decimal)
```

When no symbol is given the number following will be interpreted as a decimal address. The rules of the "$" symbol also apply in this instance but the number must be between 0 and 65535 (decimal).

THE INDEX REGISTERS

With that out of the way we'll now study the two index registers in the 6502, the "X" and "Y" registers, which are both 8 bits wide. Their most common use is to complement the accumulator in accessing data tables in memory, they are also capable of loading and storing like the accumulator.

For the time being, we'll only concern ourselves with the LDX, LDY, and STX, STY instructions. Look at the example below-

Assembly Language:

```
10 *=$600   ;Begin program in page 6
20 LDA #0   ;Load accumulator with zero
30 STA 709  ;Store accumulator at address 709
40 LDY #$0E ;Load accumulator with $0E
50 STY $2C6 ;Store at $2C6 (710 decimal)
60 LDX #1   ;Load accumulator with 1
70 STX 752  ;Store accumulator at 752
80 .END     ;End program
```

BASIC:

```
10 POKE 709,0
20 POKE 710,14
30 POKE 752,1
40 END
```

Both programs achieve the same results as those mentioned in our last article. Everything that we have covered so far has been incorporated into this new example, it also illustrates the use of absolute addressing (line 50) which will be explained later. If you feel unsure of this example, you should go over the notes until you fully understand them, before going any further.

ADDITION

Now that you feel more confident with assembler we'll move into slightly more complex areas.
Before we study addition we must be aware of the "carry bit flag".

The carry bit flag is one of the 7 flag bits in the "Processor Status" register or "P" register. The value of this bit tells us if the result of the most recent addition of 2 numbers was greater than 255 or not. Before attempting any addition, the carry bit should be cleared. Conversely, with subtraction, the carry bit should be set, since there could be a "borrow" when subtracting. Here, a few op-codes need to be introduced:

CLC (CLear Carry)- Clears the carry bit (=0) and prepares the 6502 for addition.

SEC (SEt Carry)- Sets the carry bit (=1) and prepares the 6502 for subtraction.

SED (SEt Decimal flag)- Prepares 6502 for Binary Coded Decimal (BCD) subtraction. This is explained later.

CLD (CLear Decimal flag)- Prepares the 6502 for BCD addition. This is also explained later.

ADC (ADd with Carry)- This instruction will add the current contents of the accumulator with the contents of an address or a number directly following the instruction to obtain a result. The status of the carry bit after the addition (0 or 1), is added to the result to obtain the final result. Since the carry bit may have been altered previously, it is common practice to clear the carry bit.

SBC (SuBtract with Carry)- This instruction takes the number presently in the accumulator and subtracts from it a number or contents of an address which directly follows it. The carry bit will be subtracted from this result to produce the final answer. Let's put this new information to work in order to make it easier to understand-

[Turn Over...]

Assembly Language:

```
  10 *=$600     ;Assemble in page 6
  20 CLC        ;Clear carry, prepare for addition
  30 LDA #10    ;Load accumulator with 10
  40 ADC #10    ;Add with carry 10
  50 .END
```

BASIC:

```
    10 A=A+10
    20 END
```

The listing above is a simple example of binary addition. Below, we'll dissect the listing line by line so that we can fully grasp the concept.

LINE 10: Instruct the computer to assemble the object code in Page 6 of memory.

LINE 20: Clear the carry bit before attempting addition.

LINE 30: Load accumulator with 10 (decimal).

LINE 40: Tells the computer to take the current contents of the accumulator (10) and add 10 (decimal) to it. Now the value of the carry bit will be added to this result thereby obtaining the final result. The final result will be written back into the accumulator.

LINE 50: Tells the assembler that it has reached the end of the program.

Assuming that your assembler has a "debugger" portion, it is easy to see whether or not our program actually works. It is a simple matter of entering the the program in the "EDIT" mode, assembling it (ASM) and then entering the debugging mode. If using the Atari Assembler Editor, just type 'BUG' and you will access the DEBUG mode, type 'X' to exit.

From now on we'll assume that you have the Atari Assembler cartridge. Type 'T600' and the computer will execute the code and display the values of the main 6502 registers after executing each instruction. The result of our example addition program will be the final value of the accumulator (in hex. of course).

That was the simplest form of binary addition. In our next article we hope to discuss 16 bit addition and, if possible, binary coded decimal (BCD). Make sure that you go over the given examples and understand them. If you have any suggestions or problems, please send them care of the editor.

BOOK REVIEW

Programming the 6502

by Rodney Zaks (Published by Sybex Inc.)
Reviewed by Ken Shiu. (Lugarno, N.S.W.)

When learning to program in machine language it is essential to have a book or guide to learn from. In the Atari Assembler Editor User's manual it recommends three books,one of them being "Programming the 6502" by Rodney Zaks. Zaks is well known in the computing field and for his several books.

"Programming the 6502" covers a broad range of 6502 topics. Zaks assumes that the reader has had no previous programming experience and begins by explaining several different number systems (e.g. binary, Binary Coded Decimal, hexadecimal), the basic computer system and how it interfaces with the 6502 chip.

He gradually introduces the early concepts, the instruction set, modes of addressing, a technical run-down on the chip itself, interfacing to external devices (for the hardware buff), data structures and finally, program development.

Although this book is 'riddled' with examples, diagrams and photos it isn't Atari specific, so some of the examples will need a little improvisation.

Pages often refer back to the one diagram -a constant nuisance when you have to flip back several pages to find the correct diagram so that you can fully understand the explanation. To further that problem, when I first began Assembly Language programming myself, I found that the cryptic explanations needed several readings before I could grasp the idea. Several of my friends have also ended up in the same confusion because of the same problem.

I have also heard, from several sources, that the first edition of this book, as well as two subsequent editions are infested with errors.

Overall, this book is satisfactory for the beginning Assembler programmer but, be prepared for several re-readings!

TALKING TO FUTURETRONICS

It appears that a few of our members have been writing to Futuretronics concerning, what they feel, is a lack of support for the Atari computer and users' groups in Australia. As a result, we had in attendance at our March meeting, Noel Thurlow (General Manager of Futuretronics in Australia), Peter Carr (State manager for N.S.W.) and Mr David Glenmyre (N.S.W. Sales Manager).

Naturally, they wanted to clear the air and set us straight on a few of our criticisms of them. They answered some of our questions and suggested that, in future they may send a representative to our monthly meetings. This of course, would (hopefully) foster better relations between our user group and Futuretronics.

We were told, that Futuretronics realized that in the past it had been lax in its' public relations but that they had now got their act together and things should run much more efficiently and smoothly. As a result of this, we were all asked to take our complaints to Futuretronics, rather than going to anyone else. So, if you have problems, the man to contact in N.S.W. is Peter Carr.

Concerning the high prices we pay for the Atari products in Australia, Mr Thurlow advised that Futuretronics has to pay a fairly high price when they buy from ATARI. Personally, I think that this is unreasonable, especially in lieu of the fact that the machines are now manufactured in Taiwan and have to travel a much shorter distance to reach Australia.

I know of 8 people who recently outlayed $230 each for the now defunct 16K, TI99 computers; even though, at the time, they could have purchased the 600XL for only $249. The only real differences were that the 600XL had a certain future with parts and support being guaranteed, and the fact that the Texas machine could use any program recorder while, with the Atari they would have had to pay a further $150 for the 1010 program recorder. This is just one instance of how the superior machine lost out because of what appears to be an unreasonable price. I wonder if ATARI will ever fix this anomaly?

A lot of us felt ripped off when the prices dropped from $1300 to $600 a few months ago. The lower prices that we now have, are because the machines are now made in Taiwan. Mr Thurlow stated that the Atari was originally very expensive because they (ATARI) tried for too long to employ Americans in their U.S. plants. In order to compete with other machines ATARI had to move operations and put off many of its' American workers.

A while back, I was talking to a computer retailer who mentioned that Commodore had sold all of its pre-Christmas stock to the large department stores and not given the small business man any stock. The result was that he got heaps of enquiries and no business -in essence, he was giving the user support that the department stores didn't. Also, like many other retailers, he did not stock Atari because, in the past, there had been problems in dealing with Futuretronics. Mr Thurlow indicated to us that there had been some problems in the past but that things had changed. No dealer gets a better deal (regardless of size) than any other dealer and Futuretronics intends to look after the small business man just as they would any of the larger stores.

Mr Thurlow is also keen to point out that ATARI has not snubbed the Aussie market. It was previously mentioned in Inside Info that the new XL machines were all NTSC machines which had to be modified so that they could run on the Australian, PAL TV system. He has advised us by letter, that this is not the case and that the Atari computers are manufactured, ready for use in many countries, including Australia.

FOR SALE

*****

CARTRIDGE BASED PROGRAMS: $20 each -Space Invaders, Asteroids, Basketball, Music Composer.

DISKED BASED PROGRAM: $20 -Match Racer (16k)

Contact Ken Shiu on (02)534-2120.

*****

CARTRIDGE BASED PROGRAMS: $35 each -QIX, Star Raiders, Missile Command, Pac-Man, Atari Computer Chess and Miner 2049er. All instructions included.

Contact Chris Fitzgerald on (02)637-5447.

*****

*****

ATARI 800 Computer with 48K of memory, ATARI 810 Disk Drive, ATARI 822 Thermal Printer and about $600 worth of software. All in excellent condition and about 18 months old. Cost over $3000 but will sell for $1200.

Contact Sonny Sheedy (Inverell, N.S.W.)
on (067)22-3588 B.H. or (067)22-2300 A.H.

*****

ODDS AND SODS

*****

Our club is prepared to run special courses if enough interest is shown by members. At this stage, we expect that most interest would be in tutorials on BASIC or Machine Language, but other courses could possibly be arranged if enough interest is shown.

To be worthwhile, we would need a minimum of seven people per class. Participants would be charged a nominal fee to cover preparation costs and the cost of hiring a meeting place.

Contact Tony Reeve (club President) for details or to offer you suggestions.

*****

Garry Francis has taken on the job of compiling all of the programs (for the Atari) which have ever been printed in magazines.

If you have ever typed in a listing from any computer magazine (e.g. Antic, Analog, SoftSide, Creative Computing, etc.) then send a copy to Garry through the club mail box. Mark your letter "ATTENTION MAGSOFT".

The purpose of this is to compile complete collections of Atari software which can be used in the Software Exchange and on the Bulletin Board Service. Mark your name and address on your cassettes and disks so that Garry can return them to you. Garry also mentioned that he would attempt to give you one program for every one that you send him. NOTE: Please add a REM statement to each program you send. This REMark should state the name of the magazine, the issue number and the date of issue. Your assistance will most certainly be appreciated with this project, please give it your support!!!

*****

Futuretronics has advised us that if you purchased an Atari 1050 disk drive and didn't get DOS 3, they will forward you a copy if you contact them. Here's their address and phone number:-

147 McEvoy Street,
Alexandria. 2015.
Ph(02)517 2300.

*****

One of our members is interested in using his Atari for DIGITISING SPEECH. Basically, this entails "talking" to the computer, having it record your actual speech and then repeating it in your OWN voice If you can offer him any help, or perhaps even give him a demo of a commercially available voice synthesiser, contact:-

Robert Brand.
Ph(02)32 1007.

*****

A lot of people have had trouble getting software and hardware for there Ataris in Australia. This has lead to to a lot of enquiries about where they can send to in the States for their goodies. I've dealt with and can recommend:-

MidEastern Software.
Box 247, New Florence.
PA 15944. U.S.A.
Ph. 0011-1-313-455-8022.

The owner's name is Bill Klauss and he sells at 33% of the recommended retail price, but only carries third party software for the Atari. He has a fairly extensive software price-list which he will send on request with any order; if you want it, he can probably get it.

If you want your order returned via air-mail you should add 25%, if you use MasterCard or Visa Card there is a 4% surcharge. I'd suggest you write him for further details.

One of our members has had dealings with and recommends:-

The Computer Express
PO Box 569, Troy.
Michigan. 48099. U.S.A.

If you want further details our member is prepared to offer his help. Contact Paul Brauman by phoning (066)54 1771.

Atari Program Exchange (APX) will now deal with overseas customers. They accept International Checks, VisaCard or MasterCard. If you can't get the program you want from Futuretronics, contact APX:-

3281 Scott Blvd.
Santa Clara.
California. 95951.
U.S.A.
Ph. 0011-1-408-727-5603.

PLEASE NOTE: When using MasterCard or VisaCard you should state the cards expiry date and, in the case of MasterCard, the 4 digit, interbank number located above your name on the card.

The club cannot assume responsibility if something goes wrong and you lose money. I've had problems in overseas mail-ordering but have never been ripped off. If you should have any problems with anyone, either overseas or in Australia, contact a committee member and depending on the legal situation we can at least advise other members.

*****

If you're interested in trying to win an Atari XL computer (or peripherals) and you like chocolate (or even if you don't), you might look at Cadbury's chocolates right now. Entries close 15th June, 1984.

*****

One letter I received mentioned that the Atari 600XL, along with the Vic 20 and Commodore 64, are on the list for use in primary schools in the Northern Territory. Secondary schools are to use the Apple and BBC computers. The letter also stated that the Commodore is more widely accepted because of price.

*****

The screen dumps used throughout this issue are the "CARTOONS" which are included on the Software Exchange disk/cassette "Inside Info Vol. 2". They were originally created by one of our members, Allan R. Smyth. The cover this issue was created (patiently) by Tony Dinallo on Micropainter -Thanks, Tony and Allan.

*****

Would you believe this issue filled one side of a disk! No wonder my fingers are getting shorter!

Prentice-Hall

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BOOKWARE™

ATARI

_____**A + Programming in Atari BASIC** *by John Reisinger.* A step-by-step approach to learning BASIC programming on the Atari 400, 800, 600XL and 800XL computers. The workbook format is ideal for self-study, schools, workshops, and camps. Programs, activities and exercises are fun and easy to understand. Reston/0–8359–6004–5/$25.50 Jun

_____**Adventures with the Atari** *by Jack Hardy.* Everything readers need to know to write and design their own adventure games for the Atari. Six actual adventures are provided for study, practice and play—along with tips and techniques for creating original games using PILOT, Microsoft BASIC, and BASIC. Reston/0–8359–0172–6 $23.95

_____**Atari: A Beginner's Guide** *by Lance Zimmerman.* Brady 0–89303–271–9/$19.95

_____**The Atari Assembler** *by Don Inman & Kurt Inman.* Step-by-step instructions help users make the leap from BASIC programming to the Atari's own assembly language. Reston 0–8359–0236–6/$23.95

_____**Atari BASIC** *by Richard Haskell.* Perfect for self-study or classroom instruction. Provides a solid introduction to BASIC programming on the Atari. GPD 0–13–049791–6/$22.50

_____**The Atari Experience** *by Adrien LaMothe.* A source of short, simple, user-friendly software programs for the Atari. Each program is presented in a standardized format with clear REM labels and short REM comments. Reston/0–8359–0144–9 $23.95/Jun

_____**Atari Games and Recreations** *by Herb Kohl.* Reston/0–8359–0242–0/ $23.95

_____**Atari LOGO Activities** *by Steve DeWitt.* Provides children with over 150 activities that encourage learning and discovery using Atari LOGO. Although the activities can be used independently from each other, they add up to a cohesive group which enables users to become inventive and creative with LOGO. Five big projects and an in-depth discussion of LOGO are also included. Reston/0–8359–0115–7 $19.95/Jun

_____**Atari Pilot Activities and Games for Learning** *by Herb Kohl, et al.* Not just a game book, this is an opportunity to explore the multiple powers of the PILOT (Programmed Inquiry Learning for Teaching) programming Language for the home and the classroom. Some of the unique features include an introduction to turtle graphics modular programming, and every imaginable type of graphic that the PILOT language gives you to create. Reston/0–8359–0321–4/ $23.95

_____**Atari Pilot for Beginners** *by Jim Conlan & Tracy Deliman, with Dymax.* An introduction to the Atari PILOT computer language for use on the Atari 400 or 800. Using a "turtle-graphics" approach, users casn make the Atari play music, display colorful, moving graphics, perform math operations, and more. Reston 0–8359–0301–X/$ 23.95

_____**Atari Player Missile Graphics in BASIC** *by Seyer.* Everything readers need to know to create sophisticated screen effects using Player Missile Graphics. Using BASIC, readers will be able to custom design graphic images, change colors, sizes, positions, even create accompanying sound! Reston 0–8359–0122–2/$ 23.95/Apr

_____**Atari User's Guide: BASIC and Graphics for the Atari 400/800/1200 Personal Computers** *by Mark & Robert Ellis and Larry Goldstein.* An introduction to BASIC programming and graphics on each of Atari's three most popular machines. Includes applications for business, graphics, and word processing. Brady 0–89303–323–5/$25.50/Apr

_____**Computer Playground: Atari** *by M. Winter.* A workbook of BASIC computer activities in the areas of words, games, and graphics for children in grades 2–6. Reston/0–8359–0840–2 $15.95

_____**Designs From Your Mind: Atari Graphics** *by Tom Rowley.* Be a graphics designer, video composer, or graphics artist with this exploration and explanation of the Atari computer's graphics and color capabilities. Part one is an introduction to shapes, colors, and scrren design—part two explores advanced graphics techniques and the internal architecture of the Atari Computer. Reston/0–8359–1276–0/ $19.95

_____**Elementary Atari** *by Bill Sanders.* An elementary level introduction to writing programs for the Atari. Reston 0–8359–1708–8/$23.95

_____**50 Fun Projects for Your Atari** *by Herb Kohl & Dale Disharoon.* 50 ideas and programs for the Atari, including a computer sketch pad, a guitar tuner, IQ building games, idea organizers, and more. Reston 0–8359– – /$10.95/Jun

_____**Games Ataris Play** *by Mike Weinstock, Mark Capella & Datamost.* A collection of wonderful games written in BASIC and structured for readability. Readers are shown how to modify the games and incorporate the routines into games they make up. Reston 0–8359–2421–1/$23.95

_____**Homework Helper for the Atari** *by Herb Kohl.* Grammar school students can now computerize their homework. This book contains specially designed programs to help them do their math, history, spelling, and vocabulary homework, plus programs for creating a grade analyzer, an assignment schedule, a note organizer, and more. Reston/0–8359–2859–4 $10.95/Jun

_____**Inside Atari BASIC: A Fast Fun, and Friendly Approach** *by William Carris.* Reston/0–8359–3082–3/ $19.95

_____**Intermediate Atari** *by Adrien LaMothe.* The step beyond BASIC for Atari owners. Teaches structured programming, text files, algorithms, advanced graphics, special printer techniques, and more. Reston/0–8359–3127–7/ $23.95/Aug

_____**Itty Bitty Bytes of Space for The Atari** *by Claire Passantino.* Program listings for computer activities for children ages 6–9. Colorful and spiral-bound. Reston/0–8359–3316–4 $ 10.95/Apr

_____**Kids and the Atari** *by Edward Carlson.* Teaches BASIC programs for the Atari. Simple, step-by-step lessons have kids programming in hours. Includes games, homework drills and more. Reston/0–8359–3607–8 $ 31.50

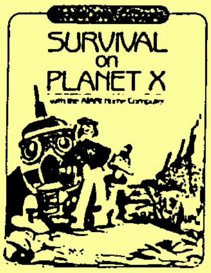
_____**Matilda The Computer Cat: For the Atari** *by Claire Passantino.* Computer activities for young children. Centered around Matilda, the adorable computer cat, this 64-page, spiralbound book contains fun, yet educational, activities for even the youngest of users. Reston/0–8359–4323–2/$ $10.95/Jun

_____**Rainy Day Activities for the Atari** *by Nancy Mayer.* Fifty games of music and art, letters, numbers, and nonsense for children ages 3–9. Program listings are all quite short so typing in the programs takes practically no time. Reston 0–8359–6390–X/$ 19.95

_____**Random Alley Adventure for the Atari** *by Mike Orkin.* Explains how to program your own games of chance, logic, and gambling for the Atari. Reston 0–8359–6404–3/$10.95/Jun

_____**School Days for the Atari** *by Claire Passantino.* Short, fun, and educational program listings for children ages 6–9. Illustrated and instructional. Reston 0–8359–6886–3/$10.95/Jun

_____**Survival on Planet X with the Atari Home Computer** *by Orkin & Bogas.* Kids will learn programming in Atari BASIC as they play an adventure game involving Vivian and her adventures on Planet X. Reston 0–8359–7412–X/$19.95/May



_____**The VisiCalc Book: Atari Edition** *by Donald Beil.* Shows readers how to use VisiCalc for functions like price/cost estimates, profit/loss forecasting, tax calculations—all on the Atari computer. Reston 0–8359–8393–5/$23.95

Prices are recommended only and are subject to change without notice.

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_____**Brave New Schools: How Computers Can Change Education** by *Glenn Kleiman*. A visit through this fictional schoolhouse is an exploration of the microcomputer's potential for change and improvement of education. Computer anatomy, educational applications, programming languages and a discussion of the various types of educational software are included. Reston/0–8359–0526–8
$23.95/Jun

_____**Buy a School for Your Home** by *Lower, O'Neill and Finger.* Designed to help parents teach their children at home with the use of a home computer. Includes evaluations of over 100 computer programs so readers can select the best for their family's needs. Specific to the Atari 400 or 800 Home Computer and software written for K–6 grade levels. Reston/0–8359–0608–6
$23.95/Apr

_____**COMP-U-KEY: An Illustrated Approach to Terminal Literacy** by *James Morrison.* The first book of its kind to focus mainly on the computer terminal and keyboard techniques. Reston 0–8359–0872–0/$ 27.50

_____**CAI Sourcebook** by *Robert Burke.* Prentice-Hall 0–13–110148–X/$ 18.95

_____**Computer-Assisted Instruction: Its Uses in the Classroom** by *Jack Chambers & Jerry Sprecher.* The first book to fully document the research on CAI—and the first one to apply principles of learning theory to CAI courseware development. For faculty and administrators who want to develop CAI laboratories and courseware. Step-by-step guidelines for self-instruction or classroom use. GPD/0–13–164376–2/
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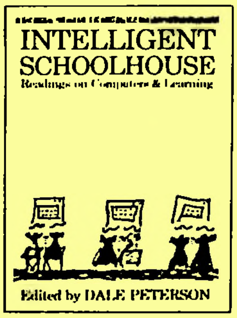

_____**Creating Computer Programs for Learning: A Guide for Trainers, Parents and Teachers** by *Gary Orwig.* This guide shows educators how to create instructional programs written in BASIC. No previous computer experience is necessary. Sample subroutines make the creation of computer assisted instruction easier and incorporate such design features as score keeping, rewarding, timing, randomizing, and more. Reston/0–8359–1168–3/
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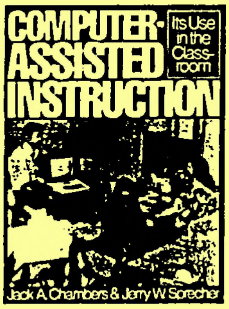
COMPUTER-ASSISTED INSTRUCTION
Its Use in the Classroom
Jack A. Chambers & Jerry W. Sprecher

_____**Intelligent Schoolhouse: Readings on Computers and Learning** by *Dale Peterson, Ed.* Over 30 articles, written by leaders of the "computer revolution" and some delightful contributions made by computer-using children, have been compiled and edited. Each article realtes a different point of view about what's happening in today's computer classroom. Reston/0–8359–3107–2/
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_____**Language Arts Computer Book: A How-To Guide for Teachers** by *Wayne Dickson & Mike Raymond.* A friendly, non-technical introduction to using commercial software-writing your own programs, and using programs to supplement reading, spelling/vocabulary, and writing skills taught in the classroom. Many sample programs included. Reston/0–8359–3941–3/
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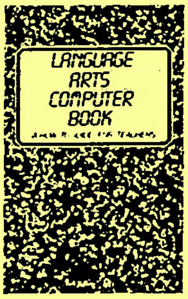

_____**Using a Microcomputer in the Classroom** by *Gary Bitter & Ruth Camuse.* An application-oriented introduction to microcomputer used in grades K–12. For teachers, administrators, and even parents, this guide discusses different types of computer-assisted instruction (CAI), selection of hardware and software, and in-class computer applications. Includes a resource section of books, magazines, films, and other teaching/learning aids. Reston/0–8359–8144–4
$28.50

_____**Microcomputer Resource Book for Special Education: How to Use the Microcomputer with Handicapped Children** by *Delores Hagen.* A complete guide for parents and teachers focusing on the special applications available for physically and communicatively handicapped children. Includes a thorough resource section listing hardware manufacturers, software companies and special interest groups. Reston/0–8359–4344–5
$25.50/Jun

_____**My Students Use Computers: A Guide for Computer Literacy in the K-8 Curriculum (Teacher's Version)** by *Beverly Hunter.* A complete how-to guide for integrating computer-related skills and knowledge into the K–8 curricula. Includes 90 detailed lesson plans and activities for each grade level, guidance for staff development, plus additional resources. The material was classroom tested during the '81–'82 school year in public schools. Reston/0–8359–4804–8
$27.50

_____**The Parent's Guide to Personal Computers** by *Ed Porrazzo & Karen Odell.* A guide designed to help parents catch up to their kids in computer literacy. The authors assuage adults' fear of computers, using examples, analogies, and pictures to demonstrate the positive roles computers can play in family life. They also offer tips on computer and software selection. GPD/0–13–649955–4/
$18.95/Aug

Prices are recommended only and are subject to change without notice.